

In The Claims.

Cancel claims 1-37.

Add the following new claims.

38. A physical vapor deposition target construction comprising:
a physical vapor deposition target consisting essentially of high purity aluminum material and diffusion bonded to an aluminum-containing backing plate; and

wherein a predominate portion of the grains in the target material are less than 100 microns in maximum dimension.

39. The physical vapor deposition target construction of claim 38 wherein all of the grains in the target material have the maximum dimension of the less than 100 microns.

40. The physical vapor deposition target construction of claim 38 wherein the maximum dimension of the predominate portion of the grains in the target material is less than or equal to about 50 microns.

41. The physical vapor deposition target construction of claim 38 wherein the maximum dimension of all of the grains in the target material is less than or equal to about 50 microns.

42. The physical vapor deposition target construction of claim 38 wherein the maximum dimension of the predominate portion of the grains in the target material is from about 30 microns to less than 100 microns.

43. The physical vapor deposition target construction of claim 38 wherein the maximum dimension of all of the grains in the target material is from about 30 microns to less than 100 microns.

44. The physical vapor deposition target construction of claim 38 wherein the diffusion bond between the target and the backing plate has a bond strength of at least about 5000 psi.

45. The physical vapor deposition target construction of claim 44 wherein all of the grains in the target material have the maximum dimension of the less than 100 microns.

46. The physical vapor deposition target construction of claim 44 wherein the maximum dimension of the predominate portion of the grains in the target material is less than or equal to about 50 microns.

47. The physical vapor deposition target construction of claim 44 wherein the maximum dimension of all of the grains in the target material is less than or equal to about 50 microns.

03

48. The physical vapor deposition target construction of claim 44 wherein the maximum dimension of the predominate portion of the grains in the target material is from about 30 microns to less than 100 microns.

49. The physical vapor deposition target construction of claim 44 wherein the maximum dimension of all of the grains in the target material is from about 30 microns to less than 100 microns.

50. The physical vapor deposition target construction of claim 38 wherein the diffusion bond between the target and the backing plate has a bond strength of from about 8000 psi to about 10,000 psi.

51. The physical vapor deposition target construction of claim 38 wherein the backing plate comprises a material selected from the group consisting of 2000 Series aluminum, 5000 Series aluminum, 6000 Series aluminum, and 7000 Series aluminum.

52. The physical vapor deposition target construction of claim 38 wherein the backing plate comprises 6061 aluminum alloy.